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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,853	02/22/2002	Larry Q. Zeng	LD11504	2425
7590	12/02/2003		EXAMINER	
Hanh T. Phan GENERAL ELECTRIC COMPANY One Plastics Avenue Pittsfield, MA 01201			LOPEZ, CARLOS N	
			ART UNIT	PAPER NUMBER
			1731	

DATE MAILED: 12/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b> 09/683,853	<b>Applicant(s)</b> ZENG ET AL.	
	<b>Examiner</b> Carlos Lopez	<b>Art Unit</b> 1731	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-17 is/are allowed.
- 6) ☒ Claim(s) 1-5,8-12,18-23 is/are rejected.
- 7) ☒ Claim(s) 6 and 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All   b) ☐ Some \* c) ☐ None of:  
     1. ☐ Certified copies of the priority documents have been received.  
     2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
     3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
 a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                     | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                            | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>6/02</u> . | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-5, 8-10,12, 18 and 22-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Burrus Jr. et al (US 4,515,612). Burrus discloses a method of optical fiber preform fabrication comprising deuterium/hydrogen exchange (Abstract). Burrus teaches that if at some point during the preform manufacturing process the unconsolidated deposit is available for processing, the invention can be practiced by exposing the unconsolidated deposit to an atmosphere containing deuterium to permit the deuterium to diffuse through out the deposited preform (Col. 5 lines 7ff). Or optionally, diffusing the deuterium during the preform consolidation. During preform consolidation the fusing of the silica quartz occurs. Thus as taught by Burrus, deuterium gas can be diffused into the preform during the consolidation of the preform and thus meet the claimed step "b" as recited in claims 1 and 18. In regards to claimed step "a", the unconsolidated perform would inherently be placed into a furnace in order to consolidate the preform. Furthermore, the consolidated silica quartz article is drawn out, removed, from the furnace once consolidation of the preform is completed, deemed as claimed step "c."

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Burrus is silent reciting step "d". However, since step d is optional, claims 3-5 and 12 are considered to be met by Burrus.

As for claim, 8 Burrus' process of inserting silica glass into a furnace, fusing and drawing an article from the furnace is considered continuous, steps a, b, and c are done right after the other.

As for claims 9-10 and 22-23, as noted by Burrus, deuteration is directed to the formation of rod or tube (see Col. 6, line 35) which encompasses the claimed sleeve and deposition tubes.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11, and 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burrus Jr. et al (US 4,515,612). Burrus teaches that the partial pressure of deuterium should be at least 10 Torr (See Col. 3 lines 17-18), thus indicating that a carrier gas would be present during the deuteration of silica. Burrus is silent disclosing which type of gas makes up the atmosphere while the deuteration of silica takes place. However, it would have been obvious to a person of ordinary skill in the art, at the time the invention was made, absent any indication by Burrus, that a person of ordinary skill in the art would assume that is an inert gas making up the atmosphere for the deuteration of the

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silica glass. The use of inert gas would reduce unwanted by-products that may result if a highly reactive gas is used in place of an inert un-reactive gas.

In regards to claim 11, Burrus objective is to exchange hydrogen for deuterium (See col. 2, lines 34ff), thus a low hydrogen concentration would be expected.

Claims 2 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burrus Jr. et al (US 4,515,612). Burrus is drawn to making of glass tube or rods in the manufacturing of optical fibers (see abstract and Col. 6, line 35). The fact that Burrus discloses using tubes in the manufacturing of optical fibers clearly shows that Burrus intends on using a "rod-in-tube" method for making an optical fiber. In a rod-in-tube method such as disclosed by Ince et al US 5,658,363, a tube is collapsed onto a rod using heat to form a preform. The preform is then heated to draw the optical fiber. Thus it is clearly shown, that a method of making an optical fiber using a tube as disclosed by Burrus, is directed to using the rod-in-tube method for manufacturing an optical fiber. Consequently, the claimed heat treatment for the fused silica article (deemed as Burrus' manufactured tube) would occur when the tube is being collapsed onto the rod.

In regards to the claimed limitation that the heat treatment should be free of hydrogen, it would be obvious to one of ordinary skill in the art at the time the invention was made to have collapsed Burrus' tube in a hydrogen free environment since it is Burrus main objective to prevent hydrogen from diffusing into the silica glass.

In regards to claim 21, the temperature to collapse the tube onto the rod and fuse the tube to the rod would at the very least be 200 degrees Celsius.

***Allowable Subject Matter***

Claims 6-7, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 13-17 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The cited prior art fails to disclose or reasonably suggest steps a and e in combination with steps b-d of claims 13-17. Additionally, the cited prior art fails to disclose or reasonably suggest the claimed dew points of the gas atmosphere as recited in claims 6-7.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References A-G and N-O in PTO-892 have been cited to show the state of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Lopez whose telephone number is (703) 605-1174 and after Dec. 18 2003 calls should be directed to (571) 272-1193. The examiner can normally be reached on Mon.-Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (703) 308-1164 and after Dec. 18 2003

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calls should be directed to (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

CL

A handwritten signature in black ink, appearing to read 'Peter Chin', with a stylized flourish extending to the right.

PETER CHIN  
PRIMARY EXAMINER